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TO : [REDACTED] Chairman
Economic Defense Intelligence Committee

25X1A9a FROM : [REDACTED] OSI and [REDACTED] ORR 25X1A9a

SUBJECT: COCOM - Polyethylene

REFERENCE Paris POLTO A-75 8 August 1956
Paris POLTO A-157 28 September 1956

1. Reference (a) has to do with a redefinition of polyethylene (Item 3750) and proposes to remove from List III coverage polyethylene with an average molecular weight of 10,000 and less. To this proposal ORR/C/M interposes no objection to the sale of low molecular weight per se and this is concurred in by OSI/FSD/C.
2. Reference (b) has to do with paragraph 1 relative to COCOM Doc. No 2269 the UK request for member government views on the sale to the USSR of production know-how for the manufacture of polyethylene. From an intelligence viewpoint OSI/FSD/C, concurred with by ORR/C/M, is unalterably opposed to the sale or passing to the USSR or Bloc countries the technical know-how and/or scientific processing data for the production of polyethylene. The documentation and consideration for this position is detailed in the following paragraphs:
3. Polyethylene is a material of great military importance and is one of the best plastics as yet developed for insulation of electronic equipment, especially coaxial cables, and as insulating material on the wires of electronic equipment necessary for aircraft and guided missiles.
4. At the present time polyethylene is made by three basic processes. The principal process is the "high-pressure" process capable of producing high or low-molecular material. It was originally developed by the Imperial Chemical Industry of England, and has been licensed by them to the Farbwerke Hoechst plant of the old IG Farben complex of Germany, and to a number of American Companies. In addition, licenses have been given to other European countries, notably France and Italy whose production as yet is largely along development lines.
5. Polyethylene is produced in large quantities in the United States. Probably 90 percent of the world's production is made in the United States, using petro-chemical materials as the basic raw materials. Outside of England and West Germany, there is only limited production in France or Italy.
6. The second process is relatively new, and was developed by Doctor Karl Ziegler of the Max Planck Institute for Coal Research in West Germany. He was formerly closely associated with the old IG Complex as one of their key research personnel. His process is the so-called "low-pressure" process which develops products of high molecular weight. This material is also of special value for mechanical items of military use. This process is not used in large scale commercial production. Licenses have been issued by Doctor Ziegler to several of the large American producers, several of whom also use the conventional "high-pressure" process.

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7. The technology of the Ziegler process is quite different from that of the conventional process. Probable plant installation cost may be less.

8. A third process called intermediate-pressure is still in the development stage. It offers great potential, in that the end-product is quite different from the two previous mentioned products. It is reported that the "intermediate-pressure" polyethylene will stand a much wider range of temperature than material from either of the two above mentioned processes. Also, it is reported that the technique and processes for the "intermediate pressure" material are quite different from that used in either of the two preceding processes.

9. We understand that polyethylene is one of the most important plastics at present used on tonnage basis for certain military equipment. There are other plastics, which we are not considering at this time that are used in small quantities for several purposes and have even more strategic importance.

10. There is practically no production of polyethylene at the present time in the Sino-Soviet Bloc countries. There is one plant producing on a pilot-plant scale in East Germany, using the high-pressure process. Research, with small production has been carried on in Czechoslovakia, but there is no evidence of production in the other countries of the Bloc.

11. There has been much evidence of intense interest in polyethylene in the Bloc countries. For a number of years efforts have been made to get polyethylene from the West, largely the United States material. The Soviet Union is very interested in its production, and is desirous of getting information on processing and in obtaining production equipment of the latest design from the Western countries. Recently, when in England a Russian delegation tried to obtain the process from the ICI and were turned down. Shortly thereafter, they contacted the West German producer, Hoechst, and again were turned down.

12. We wish to call attention to the fact that in the United States at least 90 percent of the polyethylene produced is used for civilian purposes and 10 percent for military. We believe that the percentage will be completely reversed in the Orbit countries, with probably 100 percent used for military purposes, as there is practically no civilian outlet.

13. Complete plans, know-how, scarce materials and equipment needed for complete construction of the Ziegler process low-pressure polyethylene unit is of much more importance than the shipment of the plastics materials alone. ~~(We agree with your source comment that if this contract is completed, it would be the technical coup of the year for Czechoslovakia, and therefore, for the entire Orbit group).~~

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